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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/789,937	02/27/2004	Hisataka Toyoshima	9319T-000696	6792
27572	7590	03/25/2005	EXAMINER	
HARNES, DICKEY & PIERCE, P.L.C. P.O. BOX 828 BLOOMFIELD HILLS, MI 48303			MAI, NGOC LAN THI	
			ART UNIT	PAPER NUMBER
			1742	

DATE MAILED: 03/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/789,937

Applicant(s)

TOYOSHIMA ET AL.

Examiner

Ngoclan T. Mai

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 5/17/04 & 2/27/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3-4, and 8-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Nitta et al. (5,338,508).

Nitta et al discloses spherical alloy steel powders having an average particle diameter of 20  $\mu\text{m}$  or less for injection molding that are produced by atomization method. Nitta et al. teaches the powders can be of Cr-Ni type stainless steel having a composition of 0.1 to 1.0% C, 0.20% or more by weight of Si with manganese/silicon ratio of 1 or higher, 8-30% Cr and 1-4% Ni. See col. 7, line 18 to col. 9, line 29 and Table 6, No. 51-54 and Table 7, No. 67-68. Nitta et al also discloses employment of powders having average diameter between 8 and 9  $\mu\text{m}$  to form sintered part.

Nitta et al also teaches the powders are formed into sintered by kneading the powders with a binder, pelletizing the kneaded material by a pelletizer or crusher (grinder) to form a compound, compacting the compound by injecting molding and sintering, see col. 17, line 19 to col. 19, line 3. Note that the pelletizing the powders with binder by crushing, Nitta et al implicitly teaches granulating the raw powder.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 2 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Talmage (3,460,940).

Talmage discloses a method for producing sintered high purity steel from iron-base metal powder comprising providing a blended mixture of alloying ingredient, carbon and substantially finely divided iron-base powder, forming the blended mixture into a porous green compact and heating to sinter the compact, col. 1, lines 12-30, col. 5, lines 11 to col. 52. Talmage teaches that the average particle size of the iron powder should preferably not exceed 10 microns and the particle size of the alloy addition including carbon should not exceed one micron, col. 5, lines 17-25.

Talmage teaches carbon is blended in the mixture in an amount so that the final sintered product can have 0.1 to 2.5%, col. 1, lines 30-35. Talmage also teach employing 2% nickel and 1% Ni in col. 7, lines 61-69. Talmage also teach the Mn and Si can be present in the amount of 0.15 to 3.0%, see col. 3, lines 3-10.

The difference between the claims and Talmage is that Talmage does not specifically teach the mean grain size of the raw powder to be 8.5  $\mu$  or less. However it

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would have been obvious to employ raw powder have such mean grain size since Talmage teaches any size small than 10  $\mu$  would work.

5. Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nitta et al. in view of Kiyota (5,006,164).

Nitta et al discloses the method substantially as claimed. The difference between Nitta et al and the claims are that Nitta et al does not teach the size of the granulated powder (claim 5) and relative density of 97% or higher (claim 6-7).

However, it is known in the art that the higher density of sintered part can be obtained by the selecting of the iron powder and the amount of the binder and as well as the selecting of the sintering conditions, see Kiyota, col. 4, lines 31-35. Kiyota et al teaches the selecting of iron powder can be done by pulverizing or classifying the iron powder into a desired particle size and shape, col. 4, lines 59-68. Thus would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Nitta et al by employing any one of the well known techniques as taught by Kiyota et al in order to improve the density of the sintered part of Nitta et al. Determination of an optimum or workable range of granulated powder size to obtain desired result would have been obvious one skilled in the art.


(Note that claim 7 referred to it as specific gravity and it does not appear that this term is used in the specification. It is not clear how this term is different from relative density, however the examiner interprets it to be the same as relative density and it will be treated as such.)

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6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ngoclan T. Mai whose telephone number is (571) 272-1246. The examiner can normally be reached on 9:30-6:00 PM Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Ngoclan T. Mai  
Primary Examiner  
Art Unit 1742

n.m.